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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,648	08/29/2003	Juan Manuel Tejjido	450117-04466	9331

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EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/651,648	Applicant(s) TEIJIDO ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/29/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's *preliminary* amendment filed on August 29, 2003, which has been entered into the file.
- By this amendment, the applicant has amended claims 3-7, 10-12, 14-15, and 17-19.
- Claims 1-19 remain pending in this application.

Drawings

1. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph**, as containing subject matter which was **not** described in the specification in such a way **as to enable** one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The specification and the claims **fail** to teach how could the member (30) as shown in Figures 1-5 is capable of being “a secondary illumination light *providing* portion being adapted to *provide* secondary illumination light derived from said primary illumination light”. It is clear that the member (30) is utilized to **receive** secondary illumination light **NOT TO provide** the secondary illumination light.

Clarifications are required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by “such as” and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, **claim 1** recites the broad recitation “illumination unit” and the claim also recites “in particular for a projection system” which is the narrower statement of the range/limitation.

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Claim 2 recites the broad recitation “dichroic color selection properties” and the claim also recites “in particular in reflexion and/or in transmission” which is the narrower statement of the range/limitation.

Claim 3 recites the broad recitation “polarization selection properties” and the claim also recites “in particular with *diffractive* polarization selection properties” which is the narrower statement of the range/limitation.

Claim 7 recites the broad recitation “diffractive beam splitter” and the claim also recites “in particular for at least one spectral or color thereof” which is the narrower statement of the range/limitation.

Claim 8 recites the broad recitation “diffractive grating structure” and the claim also recites “in particular having or forming a first or light incidence surface” which is the narrower statement of the range/limitation.

Claim 9 recites the broad recitation “provided with alternating sequence of concave areas or recesses and convex areas” and the claim also recites “in particular in or on said first or light incidence surface” which is the narrower statement of the range/limitation.

Claim 15 recites the broad recitation “essentially in the plane” and the claim also recites “in particular parallel thereto” which is the narrower statement of the range/limitation.

Regarding claim 1 the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Clarifications are required.

Claim Objections

6. **Claims 1-19 are objected to because of the following informalities:**

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The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with **grammatical and idiomatic errors**.

(1). The term “and/or” recited in various claims is confusing and indefinite since it is not clear the scope of the claims is considered to be “and” or “or”.

(2). The phrase “to ... generate ... secondary illumination light or a preform or a part thereof” recited in claim 1 is confusing and indefinite since it is not clear that exactly are the limitations that sought for patent here.

(3). The term “reflexion” is wrong, it is believed it should be “reflection”.

(4). The term “inciding” is wrong, it is believed it should be “incident”.

(5). The phrase “diffraction index” is wrong, it should be “**refraction** index”. The applicant is respectfully reminded to also correct this mistake in the Specification.

(6). The phrase “is or is adapted to work as” recited in claim 4, the phrase “adapted to act as” recited in various claims and “is or comprises a plurality of layers” recited in claim 14 are confusing and indefinite since it is not clear if the various element *is or is not* the various features recited follow the phrases.

The phrase “in particular having or forming a first or light incidence surface or face” recited in claim 8, and the phrase “a first or light incidence surface or face” recited in various claims are confusing. What is considered to be the “face” and how are these various terms being different from each other? What is considered to be the “first surface”, “first” as compared to what? The scopes of the claims with these phrases therefore are NOT CLEAR.

The phrase “said embedded materials” recited in claims 12 and 19, and the phrase “said grating bulk material” recited in claim 18, and the phrase “said concave areas or recesses ... said convex areas”

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recited in claim 19 are confusing and indefinite since they each lacks proper antecedent basis from their respective based claim.

The claims as stand now contain numerous errors, indefiniteness and confusions. The examiner can only point out a few. It is applicant's responsibility to clarify ALL of the discrepancies in the claims to make them in comply with the requirements of 35 USC 112.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Kramer (PN. 5,179,463).

Kramer teaches an *illumination unit* in a scanning system utilizing *light projection scheme*, wherein the illumination unit comprises a *laser light source*, serves as the *primary illumination light providing portion*, (26, Figure 1) that is adapted to provide a *primary illumination light* and a *collimating lens* (42 or 44) each serves as the *secondary illumination light providing portion* for providing a secondary illumination light that is derived from the primary illumination light. Kramer teaches that a *polarization beam splitter* (30), serves as the *light selecting element* is disposed between the primary illumination light providing portion (26) and the secondary illumination light providing portion, (42 or 44) for reflecting S-polarization component of the incident light and for transmitting the P-polarized component of the incident light. With regard to claim 3, Kramer teaches that the polarization beam splitter may be a diffractive grating element, (please see column 2, lines 65-69).

This reference has therefore anticipated the claims.

9. **Claims 1-2, 5, 6, and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Kaise et al (PN. 6,330,112).**

Kaise et al teaches an *illumination unit* in an *image projection display apparatus* (Figure 1) wherein the illumination unit comprises a light source, serves as the *primary illumination light providing portion*, (11, Figure 1) that is adapted to provide a *primary illumination light* and a *projection lens* (70) serves as the *secondary illumination light providing portion* for providing a *secondary illumination light* that is derived from the primary illumination light. Kaise et al teaches that a *polarization beam splitter* (17) and *dichroic mirrors* (66), together serves as the *light selecting element*, is disposed between the primary illumination light providing portion (11) and the second illumination light providing portion, (70) for reflecting S-polarization component of the incident light and for transmitting the P-polarized component of the incident light and for selecting and separating *particular color* or *spectral* of incident light, (please see columns 5 and 10).

With regard to claims 2 and 6, Kaise teaches that the dichroic mirrors are designed that each dichroic mirror *reflects* one color component (either red, green or blue) and *transmits* other color components of the light, which therefore acts as a *dichroic beam splitter*. With regard to claim 15, Kaise et al teaches that each of the dichroic mirrors are made of *multilayer films*, (please see column 5, lines 30-35) which serves as the *dichroic spectral filter*. With regard to claim 16, the multilayer structure as understood in the art implies interference filter arrangement which includes layer of different refractive indices. With regard to claim 17, it is implicitly true that the multilayer structure has a first and second layers extend essentially in plane of the incident surface.

With regard to claim 5, Kaise et al teaches that the polarization beam splitter (17) reflects S-polarized light and transmits P-polarized light.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 4, 7-14, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Kaise et al in view of the patent issued to US patent application publication by Takada et al (US2002/0063962).**

The illumination unit in an image projection display apparatus taught by Kaise et al as described for claim 1 above has met all the limitations of the claims. Kaise et al teaches that the light selecting element includes dichroic mirror made of multilayer films, which acts as the dichroic beam splitter, however this reference does not teach explicitly that the dichroic mirror may also be diffractive elements. Takada et al in the same field of endeavor teaches a *diffractive* optical element that is capable of *reflecting* a light of a selected wavelength and *transmitting* light of the other wavelengths (i.e. having wavelength selectivity and dichroic beam splitting function), (please see paragraph [0009]). Takada et al teaches that the diffractive beam splitter has a *grating bulk material* (11, Figures 1-3) and *diffractive grating structure* with alternative sequence of concave areas and convex areas in the first surface of the bulk material and a plurality of *multilayer films* (13a and 13b) also with alternative sequence of concave areas and convex areas (12). In Figure 3, Takada et al teaches that the diffractive grating structure has line structure and the multilayer structure (12, Figure 3) serves as the *embedded* material that fill the concave areas of the grating bulk material. The refractive indices of the bulk material and the multilayer structure are different, (please see paragraph [0042]). With regard to claim 14, one can regard the

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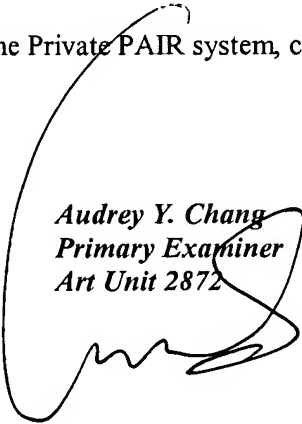
multilayer structure as the grating bulk materials. It would then have been obvious to one skilled in the art to apply the teachings of Takada et al to modify the dichroic mirror beam splitter of Kaise et al to make them diffractive beam splitter with multilayer structure for the benefit of providing a dichroic beam splitter with enhanced wavelength selectivity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.